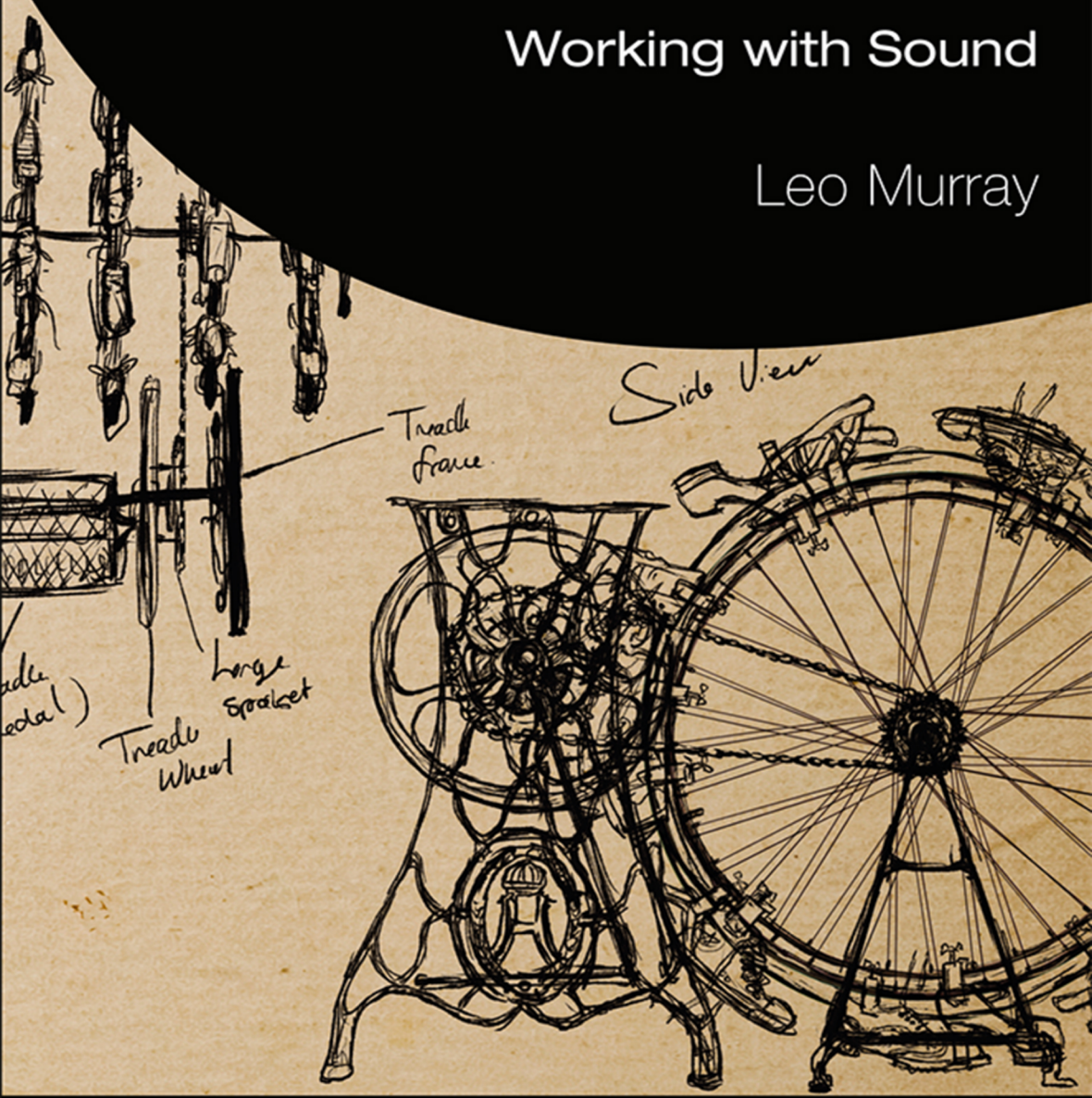
Sound Design Theory and Practice

Working with Sound

Leo Murray



ROUTLEDGE

SOUND DESIGN THEORY AND PRACTICE

Sound Design Theory and Practice is a comprehensive and accessible guide to the concepts which underpin the creative decisions that inform the creation of sound design.

A fundamental problem facing anyone wishing to practice, study, teach or research about sound is the lack of a theoretical language to describe the way sound is used and a comprehensive and rigorous overarching framework that describes all forms of sound. With the recent growth of interest in sound studies, there is an urgent need to provide scholarly resources that can be used to inform both the practice and analysis of sound. Using a range of examples from classic and contemporary cinema, television and games this book provides a thorough theoretical foundation for the artistic practice of sound design, which is too frequently seen as a 'technical' or secondary part of the production process.

Engaging with practices in film, television and other digital media, *Sound Design Theory and Practice* provides a set of tools for systematic analysis of sound for both practitioners and scholars.

Leo Murray is a lecturer in sound at Murdoch University, Australia. He spent ten years as a broadcast engineer in the UK, before moving into teaching and researching in sound, principally working in film and television. His research interests include sound design, semiotics and media ethics.

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FOREWORD

My own interest in sound began as a child, as it did with many people: through listening to music, watching television and films, and playing games. When I was growing up there seemed to be a never-ending series of children's television shows which had fantastic theme music, an impressive array of character voices, and vivid sound effects. The cartoon series *Tom and Jerry* cartoon often entailed Tom the cat receiving an incredibly painful though temporary injury. In one particular episode, the details of which are long gone, I can still remember the screaming sound he made. It was such a desperate, comical, elongated yelp of animated pain that it stuck with me. I can still remember the sound even now. Though probably not consciously at the time, I was somehow aware that someone, somewhere had *made* that sound, because I knew that cartoons did not talk by themselves. Someone, therefore, had *chosen* that sound for the cartoon; they may even have made the sound themselves, and it fitted perfectly.

From then on, over the years I became increasingly interested in how things sounded. As a teenager in the 1980s this was usually through a newfound interest in music in general, and music production in particular. It seemed that music and music technology were developing rapidly side by side with original and interesting new sounds and styles coming one after another. Later I discovered many other sound practitioners of my approximate age were experiencing their own particular sonic enlightenments around the same time. Whether it was the electronic sounds of 1970s gaming consoles, or the character voices for Warner Bros cartoons, or the clue that Steve Austin in the *Six Million Dollar Man* was using his bionic powers, or the futuristic theme music for *Doctor Who*; each was fascinating to me. I did not know about Mel Blanc, though I would have seen his name on hundreds of cartoons. I did not know how someone had come up with the idea of *auralising* the feat of bionic vision. I did not know that Delia Derbyshire and her contemporaries had created many of the most revolutionary sounds in the BBC Radiophonic

Workshop. Experimenting with a borrowed video camera allowed me a first glimpse of having the ability to provide a sound track of my own choosing to whatever images were appearing on the screen. As an adult, I am still fascinated by sound, and particularly what happens when it is synchronised with moving images.

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Portions of Chapter 8 were originally published in 2013 as 'With my own ears: the ethics of sound in non-fiction film and TV' in the Australian and New Zealand Communication Association (ANZCA) Annual Conference.

Cover illustration – 'Shoe Machine' artwork by permission of Michelle Home. Created for the Australian short film *Sol Bunker* (2015) written and directed by Nathan Mewett. The film's eponymous character is an eccentric and obsessive sound designer.

1

INTRODUCTION

This book began with the desire to improve the alignment of the teaching of sound design concepts with sound design practice.[1] For anyone wishing to integrate the analysis or theory of sound design with the practice of sound design there remains a substantial gap in the existing literature between the analysis of the finished article and the practice that creates it. For any practitioner working to create the soundtrack for documentary and drama production, or the interactive sound design for digital video games, the work presents an array of challenges and requires a range of skills, both technical and artistic, which deserve articulation in their own right. Apart from purely theoretical disquisitions on sound, industry practice may be conveyed by practitioners themselves reflecting on their own work or by interviews with practitioners in more academic texts. However, currently there are few texts that tie theory and practice together systematically. That is the aim of this book.

Previous generations of sound practitioners often learnt their craft through an apprenticeship model in which the student sat at the teacher's side gradually soaking up experience from real-world examples. The artistic and technical demands of the work could be learned side by side under the guidance of an experienced hand. Contemporary training is more likely to be through technical and tertiary institutions, rather than through a master-apprentice model, and this should ideally provide the opportunity for teaching theory alongside practical instruction. There is a sizable proportion of people working in the industry who may not have formally studied sound but who nevertheless have arrived at a position in the industry through a combination of talent, providence and the motivation to learn for themselves through practice.

Studying sound design involves a range of approaches to the treatment of sound. Sounds may originate from authentic recordings, or may be replaced in a studio, or even designed from scratch.[2] Music may be written for the production or the production may be edited to fit the music. Sometimes the focus is on accurate and

faithful recordings, and other times on the wholesale replacement or careful editing of the original recordings in such a way as to hide the artifice of the process. The real happily lives alongside the fabricated. The synchronous coexists with the asynchronous. Each and every sound element can be subsumed by the needs of the story being told or the game being played. When combined with the images, subtle or major changes in meaning or emphasis are routinely discovered, discarded, or built upon.

In this environment, the aim of this book is to illuminate some of the processes at work in the creation of the soundtrack in such a way as to make it of practical use to those working in the industry, and to those engaged in studying, analysing and teaching sound. Where traditional analytical approaches focus on the product, the aim of this more practitioner-based approach is also to give due attention to the process. A practice-centred model has been adopted in which the theory and concepts can be applied in the context of the actual practice. The aim is therefore to devise a theory of sound design based on the actual practice of sound designers.

In working on various productions and in teaching the practice of sound design I have found many enlightening works of theory written from the perspectives of the critic, analyst or theorist, as well as interviews and articles from practitioners. However, the two have rarely correlated and there has appeared to be a disconnection between the theory and the practice. This was particularly true in the area of sound design, which has been comparatively neglected in film theory. There appeared to be an opportunity to address two issues simultaneously by articulating a theory of sound design, firmly grounded in industry practice. This book, therefore, addresses the following question:

> What theoretical model best matches how sound is used by sound designers in actual practice?

The soundtrack and the depth and complexity of work that leads to the creation of the soundtrack are often ignored altogether, reduced to a series of seemingly purely technical stages. The quotation below, from 1938, illustrates the long-held view that from an outside perspective the production of the soundtrack is seemingly preoccupied with the technical details of microphones, mixers, equalisers and the like:

> When you hear a famous violinist in Carnegie Hall you think of him only as a great creative artist – certainly not as a mechanical technician. Yet, if you were to spend hour after hour with him during practice, it is probable that you would become quite conscious of the meticulous placing of his fingers on the strings, his bowing, and even the kind of strings used on the violin. If, during all this time he appeared by necessity to be engrossed with technique, it is quite possible that when you went to the concert you would still think of him as a fine technician and of his violin as a mere mechanical tool. His concert would actually be just as beautiful a creation, but your point of view would have spoiled your appreciation of it.

> It is fortunate that the audience seeing a finished picture has not seen it being rehearsed over and over again in the re-recording rooms. If the re-recorder is successful, the audience is not conscious of his technique but only of the result achieved. The director and producer watching the re-recorder work out the details, however, may think him and his tools very mechanical, for in spite of what is going on inside his head (the important part of re-recording), his hands are performing a multitude of mechanical operations, and his conversations with his assistants are in terms of machines.
>
> *(Research Council of the Academy of Motion Picture Arts and Sciences 1938, 72)*

The musical analogy is a useful one. In order to produce anything approaching a pleasant sound, one must first master the mechanical and technical aspects of the instrument so that they become invisible to the listener. Sound practitioners are all too aware that often the better their work the more invisible it becomes. To the audience there may be no appreciation at all that any work has gone into the production of the sound track.

To those involved in video games, television or film production, but not directly in sound, the process could be seen as mysterious, technical or irrelevant. On a film set, for example, the majority of the film crew are concerned with the production of image, including the camera, gripping, lighting, art, hair, make-up and so on. Their work is visible, particularly where on set video playback shows the fruits of their labour. Conversely, the sound crew typically comprises just two people and often only they are aware of what is being recorded, with the other crew being in the sonic equivalent of 'the dark'. Headphones give access to a separate world denied to the others. Conversely, the work of other departments is often visible first hand, but also through the camera's lens and onto the playback screen. Any problems, solutions or changes in the sonic world are all but hidden.

It is readily accepted that the photographer (or cinematographer) must fully understand and master the technology and techniques of the camera in order to produce artistic work. The means of producing the art become irrelevant once the art is exhibited. Sound could and should be perceived in a similar way. However, due to a lack of awareness, knowledge and understanding of its processes it is relegated to a secondary, subsidiary or worse still purely technical series of processes, rather than an artistic enterprise. Akin to the photographer's camera or the violinist's instrument, the sound practitioner uses techniques and technologies that need to be understood and mastered in order to create the artwork, which is hidden once the work is performed or exhibited.

This book intends to form a theoretical and conceptual foundation to the practice of sound design, which is too frequently seen as a 'technical' or secondary part of the production process. It is hoped that this will facilitate a means of analysing and describing the ways in which sound, in its broadest sense, can be used to 'create meaning'. As well as being of some practical use to those engaged in the study and practice of sound design, it is also hoped that delineating the theoretical underpinnings of sound design practice will contribute in some way to the

perception of sound design as a creative enterprise, rather than a predominantly technical one.

While I was researching sound theory, film theory and film criticism, I was also working on films, watching films and reading various practitioners' own writing about their methods and approaches. In reading the practitioners' opinions and descriptions of their own working practices, it seemed that there were commonalities and methods of work that were partly attributable to schools of thought or industrial and organisational structures. There also appeared to be commonalities in their working methods that seemed to reveal a consistent and meaningful approach to the production of the soundtrack. Their approach was not typically concerned with the technical details or the minutiae of the sonic elements, but with the overall effect of the sound and picture combination as a whole. There was an overriding emphasis on the story, and how the sound helps to tell the story. The function of the soundtrack, rather than its components, increasingly became the focus of my research. What does each part do, in terms of the overall story? How are these effects achieved? How do sound design professionals see their role and their work?

If the fundamental role of the soundtrack is to help tell the story, then accordingly the fundamental role of the sound design practitioner is also to help tell the story. Taking this seemingly common-sense, but altogether necessary, starting point, it follows that the sound choices – whether they are about the clarity of a line of dialogue, the choice and timing of music against a sequence of images, the suggestive possibilities of the background ambiences, or the realistic portrayal of an event – are all concerned with how they help to tell the story.

This led to an examination of theories that had been used in film, thus far, to see what might be most suited to the particular function of explaining sound design. The field of semiotics has provided a good deal of the raw theoretical material from which film theory has grown. Semiotics is the study of signs, and for many people (myself included), signs are a tremendously useful way of thinking about how we make sense of the world. The ideas of Swiss linguist Ferdinand de Saussure have been adapted by generations of theorists in a range of academic fields. The Saussurean model of the sign, or an adaptation of it (Barthes 1968; 1972; Metz 1974), is most frequently used in film analysis. Saussure's model, developed from his study of linguistics, takes into account the arbitrary nature of signs and the importance of the sequential order of signs to create or modify meaning. Since the visual perspective of films can be easily divided into scenes, shots and still frames, there is a temptation to use the analogy of a filmic *language*, whereby the film's structure is the equivalent of the words, phrases and sentences of a language. There has been less success in adapting this model adequately to describe sound in film. However, the work of Peter Wollen (1998) indicates that there might be another semiotic pathway. The model of the sign proposed by the American Charles Sanders Peirce takes account of a great many of the functions, properties and uses of sound, which cannot be accommodated in the linguistic, Saussurean model. Further study gave me confidence to argue that the Peircean model of the sign and its related concepts

provide a comprehensive and generally applicable method of analysing how sound is used, and how the listener might make sense of what they hear whilst also providing a language that can be adapted to *describe* how sound is used. This semiotic model is described later.

Sound analysis and sound-image analysis

Whilst the main purpose of this book is to extrapolate sound theory from sound practice, it is also essential to apply the theory and concepts 'after the fact' to the completed production, in order to illustrate the flexibility of the theoretical model being used. In doing so the intention is to demonstrate how the concepts of Peirce's semiotic model can be applied to the finished productions to explain how the meaning for the audience is arrived at from the material presented in the production.

A fundamental problem facing anyone wishing to practice, study or teach sound design is the lack of a theoretical language to describe the way sound is used and an overarching framework that adequately explains how sound design works in practice. Whilst there are a growing number of books, conferences and journals geared toward the critical examination of sound design, or sound in other audiovisual media, there are few texts that are sufficiently grounded in the corresponding day-to-day work of practitioners. This research is an attempt to use the experience of practitioners within the industry to inform the theory and, through the application of Peirce's semiotic model, identify and provide a critical language that allows theory to inform the practice.

This book shows how semiotics can provide the framework and the language to analyse and describe both the product and the practice of sound design. It can be applied at micro and macro levels of analysis, being equally applicable to individual sound elements and the soundtrack as a whole. It can be used to explore what the audience hears and what the practitioners do as they manipulate sound for effect. Its flexibility also allows it to accommodate other sound theories. The Peircean model has the potential to provide both the justification for sound production practice and the means to bring sound production out of the shadows. By gaining the means to elucidate previously concealed sound production processes, it is possible to give this practice the acknowledgement it merits as a fundamental and influential element of any audiovisual artefact that cannot, and should not, be taken for granted.

In this book a number of case study productions are discussed to ascertain how sound is used in conjunction with images to perform its various functions: to create the narrative, to create a sense of immersion, to present reality (or a sense of reality), and so on. Two film examples are discussed in some detail, and their soundtracks are analysed at both macro and micro levels to highlight the flexibility of the approach: from the specifics of the individual representative sounds (and musical motifs) in *King Kong* (Cooper and Schoedsack 1933), to the unfolding of sound-image relationship and subsequent creation of meaning in *No Country for Old Men*

(Coen and Coen 2007). Whilst the analyses are primarily based on the actual films, supporting data is also used from published accounts of those who worked on the films. Other types of audiovisual works such as non-fiction production (news, documentary, television sport) and interactive media (e.g. various video game genres) are also examined to illustrate the range of productions which can be analysed.

An initial driving force during the research for this book was the belief, or at least the suspicion, that there was an underpinning rationale shared by many sound practitioners in their approach to their work that had not yet been satisfactorily explained. During this research, many of the sound editors, recordists, designers and mixers interviewed brought up the issue that often work in sound is inadvertently downplayed. This is partly because it is 'invisible', in the sense that it is difficult to determine what work has actually been done, but also because the work in progress is actually heard by relatively few, and even where this work is heard, it is not often immediately apparent what end is being achieved by the work. Part of the problem of analysing and talking about sound is the lack of appropriate or consistent vocabulary. A language with which to describe the purpose and function of sounds and sound practices might go some way to removing the shroud of unfamiliarity around the work of the sound practitioner. The semiotic model and its vocabulary used in this book can be useful in analysing both the soundtrack as a whole, as well as the specific sounds and sound/image combinations. It provides the means to go beyond the technical operations to describe the functional aspects of sounds. Semiotics, used as an overarching model into which other elements of sound theory can be incorporated, has shown that it is versatile enough to provide a comprehensive and universal approach that can be applied equally to both the productions themselves and the practice of sound design.

The task of creating the soundtrack can be described in terms of a series of questions about what the audience should know, feel or think as they experience the production. This type of approach focuses attention on the decisions that influence how well the story is told, or rather how the story will be understood or experienced by the audience. It shifts the focus from the classification of the sound to its function in the soundtrack, where each element of the soundtrack is selected and manipulated to serve the needs of the work.

The types of focused listening described by Michel Chion affect the decisions that are made about the individual elements of the soundtrack, as well as the overall view of the soundtrack. In Peircean terms, these properties of sounds are reframed as *sound-signs*, having iconic, indexical or symbolic relationships to the things they represent, which are manipulated by the producer and interpreted by the audience. This model of the soundtrack does not seek to overthrow the many useful, existing sound design models developed by theorists and practitioners. Indeed, the models suggested by Rick Altman, Michel Chion, Walter Murch and Tomlinson Holman can be successfully integrated into the broader Peircean model. Similarly, whilst the industrial model typically delineates sounds as either dialogue, music or effects, the Peircean model can be applied to each family of sounds,

enabling the classification of sound elements in terms of their particular function and role within the soundtrack.

In some sense, the creation of the soundtrack is an exercise in problem-solving. There are sounds that need to be used, but which may require editing or replacement in order for the narrative to be maintained whilst the artifice remains hidden. There are sounds that are added or manipulated that are designed to go unnoticed, but are judged to suggest a feeling that would not otherwise be present. There are relationships between sounds and images that can yield an interpretation of the narrative, either explicit or implicit. Each element, be it sound or image, is only a part of the whole, and they are co-dependent or interdependent. The soundtrack depends on the image and the image is dependent on the soundtrack. As seen through the Peircean semiotic lens, the practice of sound design can be more clearly illustrated as a creative endeavour rather than a technical one.

For those involved in sound design, a recurring concern is the perception of sound practitioners and their work by others involved in other areas of film, television or interactive media. Sound production can too easily be dismissed as a sequence of overly technical operations, reinforcing the belief that the work being done is technical rather than creative. The 1938 *Motion Picture Sound Engineering* handbook presents the analogy of the violinist at Carnegie Hall whose technical mastery appears effortless:

> If the re-recorder is successful, the audience is not conscious of his technique but only of the result achieved. The director and producer watching the re-recorder work out the details, however, may think him and his tools very mechanical, for in spite of what is going on inside his head (the important part of re-recording), his hands are performing a multitude of mechanical operations, and his conversations with his assistants are in terms of machines.
>
> *(Research Council of the Academy of Motion Picture Arts and Sciences 1938, 72)*

A semiotic model highlights the process of meaning-making. When applied to sound design practice, it uncovers the way sound is creatively manipulated at every stage, often using technical means, to achieve a particular aim. This aim is frequently described in broad terms as serving the needs of the story. In more practical terms, it means serving the director's wishes, so that sound can be integrated in the overall narrative to suit the needs of the story.

For those working in sound design, there is an implicit acknowledgement that these decisions, whilst often technically based, are made in the interests of the production as a whole. It is a process that begins with the question about the purpose or intended effect of the various aspects of the soundtrack. It might be that a significant role for the soundtrack is in creating the illusion of seamlessness, so that a series of disjointed visual shots appear to be a single continuous piece of action, or to lend a sense of believability to a fiction such as a fight sequence or a fantastic monster or animated vehicle. It might be that the soundtrack needs to set a particular mood, or geographical location, or historical time period, or time of

day. Whatever the requirements, once determined, the second part of the process is spent answering the question: How best to go about achieving this end? This book is an attempt to examine that process to demonstrate even to those not directly involved with the production of soundtracks that the practice of sound design is end-directed, in the sense that decisions about sound are taken based on the effect they produce. Rather than perceiving sound as a superfluous or auxiliary step that is applied at the completion of a creative process, it can instead be scrutinised as a fundamentally important aspect of the creation of the entire work.

In talking to industry practitioners for this book it became apparent that they had shared concerns about the way sound was viewed within the wider industry. Often this was the increasing pressure on time to complete the work to the standard required, especially in post-production. Each worked with the utmost professionalism on their productions and valued the work of their collaborators and colleagues in sound and in the wider industry. Relatively few were particularly concerned with technology or with tools, but each was passionate about sound and its potential to help in telling stories.

Sound is frequently employed as a means of representing reality in concert with the images. However, practitioners are keenly aware that often there is a need, and the potential, for this to be fabricated, manipulated or recreated if necessary. For those involved in sound for non-fiction, a high standard of professional and ethical practice is the benchmark. For practitioners, critics, analysts, teachers and students of sound design, some guidelines may prove useful in beginning an overdue discussion about the ethics of sound practice. Whilst not exclusively the domain of those working in non-fiction, the ethics of sound is increasingly becoming a concern given the difficulty that the audience, and even fellow professionals have in discriminating between the real and the fabricated, and many types of sonic 'sleight of hand'.

Constraints caused by insufficient time or money are problems common to most sound practitioners at some time or other, as they are with any other creative endeavour. Occasionally, the biggest impediment to a more imaginative use of sound are colleagues whose understanding or appreciation of sound's creative potential means limited involvement in the design of the production, or insufficient acknowledgement of the potential for sound to affect the meaning of the whole. Where a director or producer values sound and sees its importance in the finished product, the impact is felt throughout the production. Similarly, some practitioners enjoy a less traditional method of production, collaborating with those who value sound, and facilitating the early involvement of their sound colleagues when their opinions, concerns and suggestions can be incorporated into the foundation of the production, rather than being used as a coat of paint to be applied to the finished structure.

By uncovering some of the underlying principles of the way sound functions as a sign, this book adds weight to the argument that sound's storytelling potential is too often limited by it being seen as an appendage or afterthought, rather than an essential element of any audiovisual artefact. Often the work is done so deftly as to hide itself, which means the creative labour involved risks being attributed elsewhere. For those looking in on the world of sound, the attention is easily put on

the technology and the tools of the trade rather than the value that sound adds, and with no knowledge of the journey taken to arrive at the finished soundtrack any work done is already invisible. This book adds to the call for sound to be recognised as a full and genuine creative collaborator in the creation of audiovisual productions, whose potential should be maximised at each stage of development and production. To those behind the curtain, intimately involved in the production as the soundtrack takes shape, the impact of sound on the finished article and how the soundtrack affects the audience is clearer. With the help of semiotics we can uncover the underlying principles, rationales and philosophies which underpin the soundtrack itself as well as the practice of sound design.

For those wary of 'theory'

Many filmmakers are innately dubious or outright critical about film theory itself or the theories about the work that they do. The British director Alan Parker (*Midnight Express, Angel Heart, Evita*) made a documentary for Thames Television, commissioned to commemorate British Film Year in 1986. After playing clips of two revered critics, Derek Malcolm (critic) and Anthony Smith (BFI), he commented:

> The academic spiv is a new phenomenon in the film industry: articulate, opinionated, and not above a little old-fashioned, self-serving hype; a sort of Lou Grade with 'O' levels. And about as useful to the rest of the film industry as a scratch on the negative.
>
> *(Parker 1986)*

This view is shared by some institutions and individuals whose instinctive position is that you learn more about film by doing it and, furthermore, rely on the idiom: those that can, do. Toby Miller describes it as a "line of reasoning that says: a) film-makers work with their imagination and practical knowledge; b) film-goers work with common sense; and c) film theorists work to undo the special magic and evacuation of cinema, on the basis of their lack of these three qualities" (Miller 1992).

Of course, a number of historically important film-makers also had a lot to say about theory. Russian filmmaker/theorists alone like Vertov, Kuleshov, Pudovkin and Eisenstein make up an impressive list of practitioners who made films yet devoted considerable time and energy to film theory and criticism.[3] Obviously then being a film-maker does not preclude or prevent the individual from also being a film theorist. Indeed, it could easily be argued that being a film-maker affords a much better position to originate theory since it is based on first-hand lived experience.

Aside from arguing for the intellectual merits of film theory authors like Lapsley and Westlake also make a convincing case for its continued relevance:

> In watching a film the spectator is not merely a passive receptacle imbibing its meaning, but is engaged in a succession of interpretations which depend on a